

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

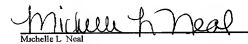
Group }
Art Unit: Unknown }
Attorney }
Docket No.: SHC0155 }
Applicant: Hisashi Takai et al. }
Invention: TOPSHEET MADE OF NONWOVEN }
FABRIC USED IN DISPOSABLE }
WEARING ARTICLE }
Serial No.: Unknown }
Filed: Herewith }
Examiner: Unknown }

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20231.

on October 30, 2001


Michelle L. Neal

PRELIMINARY AMENDMENT

Box: Patent Application
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Prior to the examination of the above-identified application, please amend the application
as follows:

IN THE SPECIFICATION

Please replace the first full paragraph on page 3 with the following:

- -The present invention provides a nonwoven fabric that overcomes problems that
possibly occur in prior art nonwoven fabrics when used as a topsheet of a disposable wearing
article.- -

Please replace the second full paragraph on page 3 with the following:

- -It is an object of the present invention to provided a topsheet made of a nonwoven

fabric for a disposable wearing article having upper and lower surfaces and formed with a plurality of openings extending through the upper and lower surfaces.- -

Please replace the paragraph beginning at the bottom of page 8, continuing on page 9, and ending on page 10 with the following:

- Fig 4 is a view similar to Fig. 2 but showing another embodiment of the invention, Fig. 5 is a sectional view taken along the line V - V in Fig. 4 and Fig. 6 is a sectional view taken along a line VI - VI in Fig. 5. The topsheet 2 according to this embodiment comprises a nonwoven fabric layer 21 having upper and lower surfaces 22, 23 and a thermoplastic synthetic resin film layer 24 bonded to the upper surface 22. The nonwoven fabric layer 21 is similar to the topsheet 2 illustrated by Fig. 2 in that the layer 21 has the fibrous zone 11 and the opening zones 12. The film layer 24 comprises a plurality of ribbon-like strips 26 spaced from and extending in parallel to one another in one direction, for example, in the longitudinal direction y. These ribbon-like strips 26 are welded or bonded by adhesion to the nonwoven fabric layer 21 and interrupted in the longitudinal direction by the respective opening zones 12, so the ribbon-like strips 26 do not cover the opening zones 12. The ribbon-like strips 26 do not cover the opening zones 12. The ribbon-like strips 26 bonded to the nonwoven fabric, particularly to the fibers 6 forming the peripheral walls 27 of the opening zones 12 and the protuberance 14 serve to protect these opening zones 12 and protuberance 14 serve to protect these opening zones 12 and protuberance 14 from getting out of shape during use of the napkin 1. Each pair of the adjacent ribbon-like strips 26 are preferably connected to each other by bridges 32 extending in the transverse direction x so that a relative movement of these ribbon-like strips 26 can be restrained and a distance between them can be reliably maintained. The translucent or opaque ribbon-like strips 26 may be used to conceal the core 4 which was sailed with menstrual discharge absorbed therein.- -

IN THE CLAIMS

Please amend claims 1-7 as follows:

1. (Amended) A topsheet for disposable wearing articles which comprises:
a nonwoven fabric having an upper surface and a lower surface; and
a plurality of openings formed in said nonwoven fabric, said plurality of openings extending through said upper and lower surfaces,
said nonwoven fabric having a generally uniform thickness,
each of said plurality of openings having an area of about 0.16 - 5 mm² and a periphery portion adjacent said upper surface in which only a part of the periphery portion has an increased thickness as compared to said generally uniform thickness so as to make portions of said openings protuberated upward from said upper surface.
2. (Amended) The topsheet according to Claim 1, wherein said nonwoven fabric has a longitudinal direction and a transverse direction both orthogonal to a thickness direction of said nonwoven fabric and said parts of the periphery portions of said plurality of openings which are protuberated upward are formed aside of said plurality of openings in one of said longitudinal and transverse directions.
3. (Amended) The topsheet according to Claim 1, wherein said parts of the periphery portions of said plurality of openings are increased in thickness upward from said upper surface by about 0.1 - 2 mm as compared to said generally uniform thickness of said nonwoven fabric.
4. (Amended) The topsheet according to Claim 1, wherein said parts of the periphery portions of said plurality of openings which are protuberated upward have a density which is

higher than a density of surrounding portions of said nonwoven fabric extending around said parts of the portions.

5. (Amended) The topsheet according to Claim 1, wherein a total area of said plurality of openings occupies 2 - 60 % of a surface area of said nonwoven fabric.

6. (Amended) The topsheet according to Claim 1, wherein said nonwoven fabric is made of thermoplastic synthetic fibers.

7. (Amended) The topsheet according to Claim 1, wherein said upper surface of said nonwoven fabric is covered with a plurality of ribbon-like thermoplastic synthetic resin film strips spaced in parallel to one another and extending in one of a longitudinal direction and a transverse direction.

IN THE ABSTRACT

Please amend the Abstract as follows:

- -A topsheet for a disposable wearing article that is formed with a plurality of fine openings each having an area of about 0.16 - 5mm² and a part of the peripheral edge of each opening is protuberated upward from an upper surface of the topsheet. The topsheet is thereby improved so that body fluids can be rapidly absorbed and stuffiness as well as eruption of the wearer's skin can be reliably avoided.- -

• • • R E M A R K S • • •

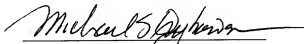
By the present Preliminary Amendment, the specification, claims and abstract have been revised to more clearly describe applicants' invention in accordance with the requirements of 35 U.S.C. § 112.

Care has been taken so as to avoid the addition of new matter in the specification, claims and abstract.

Entry of the present Preliminary Amendment prior to the examination of the application is respectfully requested.

In the event applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, applicants hereby petition therefor and authorize that any charges be made to Deposit Account No. 02-0385, Baker & Daniels.

Respectfully submitted,


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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Changes Made to Specification Paragraphs

The first full paragraph on page 3 has been amended as follows:

[It is an object of this invention to solve such a problem as possibly occurring] The present invention provides a nonwoven fabric that overcomes problems that possibly occur in [a] prior art nonwoven [fabric made by the prior art when this nonwoven fabric is] fabrics when used as a topsheet of a disposable wearing article.

The second full paragraph on page 3 has been amended as follows:

[There is provided a, according to this invention,] It is an object of the present invention to provided a topsheet made of a nonwoven fabric for a disposable wearing article having upper and lower surfaces and formed with a plurality of openings extending through the upper and lower surfaces.

The paragraph beginning at the bottom of page 8, continuing on page 9, and ending on page 10 has been amended as follows:

Fig 4 is a view similar to Fig. 2 but showing another embodiment of the invention, Fig. [2] 5 is a sectional view taken along the line V - V in Fig. 4 and Fig. 6 is a sectional view taken along a line VI - VI in Fig. 5. The topsheet 2 according to this embodiment comprises a nonwoven fabric layer 21 having upper and lower surfaces 22, 23 and a thermoplastic synthetic resin film layer 24 bonded to the upper surface 22. The nonwoven fabric layer 21 is similar to the topsheet 2 illustrated by Fig. 2 in that the layer 21 has the fibrous zone 11 and the opening zones 12. The film layer 24 comprises a plurality of ribbon-like strips 26 spaced from and extending in parallel to one another in one direction, for example, in the longitudinal direction

y. These ribbon-like strips 26 are welded or bonded by adhesion to the nonwoven fabric layer 21 and interrupted in the longitudinal direction by the respective opening zones 12, so the ribbon-like strips 26 do not cover the opening zones 12. The ribbon-like strips 26 do not cover the opening zones 12. The ribbon-like strips 26 bonded to the nonwoven fabric, particularly to the fibers 6 forming the peripheral walls 27 of the opening zones 12 and the protuberance 14 serve to protect these opening zones 12 and protuberance 14 serve to protect these opening zones 12 and protuberance 14 from getting out of shape during use of the napkin 1. Each pair of the adjacent ribbon-like strips 26 are preferably connected to each other by bridges 32 extending in the transverse direction x so that a relative movement of these ribbon-like strips 26 can be restrained and a distance between them can be reliably maintained. The translucent or opaque ribbon-like strips 26 may be used to conceal the core 4 which was sailed with menstrual discharge absorbed therein.

Changes Made to Claims

Claim 1 has been amended as follows:

1. (Amended) A topsheet [made of] for disposable wearing articles which comprises:
a nonwoven fabric [for a disposable wearing article] having an upper surface and a lower surface; and

[formed with] a plurality of openings formed in said nonwoven fabric, said plurality of openings extending through said upper and lower surfaces, [said topsheet including:]

said nonwoven fabric having a [substantially] generally uniform thickness, [and]
each of said plurality of openings having an area of about 0.16 - 5 mm² and a periphery
portion adjacent said upper surface in which [wherein] only a part of the periphery [of said opening is increased in] portion has an increased thickness as compared to said generally uniform

thickness so as to make portions of said openings protuberated upward from said upper surface.

Claim 2 has been amended as follows:

2. (Amended) The topsheet according to Claim 1, wherein said nonwoven fabric has a longitudinal direction and a transverse direction both orthogonal to a thickness direction of said nonwoven fabric and said [part] parts of the periphery portions of said plurality of openings which are protuberated [opening proturberating] upward [is] are formed aside of said plurality of openings in one of said [two] longitudinal and transverse directions.

Claim 3 has been amended as follows:

3. (Amended) The topsheet according to Claim 1, wherein [part pf] said parts of the periphery portions of said plurality of openings are [opening is] increased in thickness upward from said upper surface by about 0.1 - 2 mm as compared to said generally uniform thickness of said nonwoven fabric.

Claim 4 has been amended as follows:

4. (Amended) The topsheet according to Claim 1, wherein said [part] parts of the periphery portions of said [opening proturberating] plurality of openings which are protuberated upward [has] have a [an apparent] density which is higher than [that] a density of surrounding portions of said nonwoven fabric extending around said [part] parts of the [periphery.] portions.

Claim 5 has been amended as follows:

5. (Amended) The topsheet according to Claim 1, wherein a total area of said plurality of openings occupies 2 - 60 % of a surface area of said nonwoven fabric.

Claim 6 has been amended as follows:

6. (Amended) The topsheet according to Claim 1, wherein said nonwoven fabric is made of thermoplastic synthetic [fiber.] fibers.

Claim 7 has been amended as follows:

7. The topsheet according to Claim 1, wherein said upper surface of said nonwoven fabric is covered with a plurality of ribbon-like thermoplastic synthetic resin film strips spaced in parallel to one another and extending in one of [said] a longitudinal direction and [said] a transverse direction.

Changes in the Abstract

The Abstract has been amended as follows:

A topsheet for a disposable wearing article that is formed with a plurality of fine openings each having an area of about 0.16 - 5mm² and a [pant] part of the peripheral edge of each opening [us] is protuberated upward from an upper surface of the topsheet. The topsheet is thereby improved so that body fluids can be rapidly absorbed and stuffiness as well as eruption of the wearer's skin can be reliably avoided.